Barriers and challenges in organising the Africa Research Area

By Mammo Muchie

1. The Context

African universities are still suffering from the difficulties they faced in the 1980s and in this regard the American Chronicle of Higher Education recently stated that, "African universities' capacity to educate new PhD holders is eroding, raising deep concerns about the continent's ability to produce new generations of academics, educators."[1] Over the period 2000-2004 Africa produced only 1.8 % of the world's publications. In comparison India produced 2.4 % and Latin America 3.5 % of the world's research.[2] Moreover it has been suggested that much of research is concentrated in only two African countries, i.e. South Africa, and Egypt which between them account for just above 50% of the continent's publications. The top 8 countries in Africa produce above 80 % of the continent's research.[3] Africa's inventive profile also shows that the continent needs to catch up; as it is said it produces less than one thousand of the world's inventions, where 88% of the continent's inventive activity is located in South Africa.

2. The Current Situation

Invariably when it comes to knowledge, research and higher education in Africa, the picture that emerges is unflattering regarding research and training pertaining to all levels from the local, regional to the continent: Some of the generalisations include the following:

- Weak investment from national governments to promote continental knowledge infrastructure
- Weak mobility of knowledge, research, researchers, curriculum and innovation horizontally
- The movement of knowledge and trained people is largely vertical with those in the Northern hemisphere. Brain migration a real problem given lack of brain circulation within the continent.[4] Migration of good quality staff and researchers, to the private sector also drains human capital away from education and research.
- Obstacles and lack of incentives to stimulate inter-African knowledge communication

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[1] The Chronicle of Higher Education: 25.11.08

[2] Pouris & Pouris, The State of Science and Technology in Africa(2000-2004), **Scientometrics** 79,2009)

[3] Ibid.

[4] Net immigration from SSA was 0.57 million in 1995: fell to 0.29 million in 2000; and then rose to 0.7 million in 2005. An estimated one third of these were university graduates… Remittances are US 22 billion dollars for SSA(See World Bank, Accelerating Catch Up: Tertiary Education for Growth in Sub-Saharan Africa,, xxxiv,2009

- Poor or no representation in national development plans and bi-lateral donor support.
- Continuing 'competition' with universal primary education for popularity and extremely limited resources.
- Low reproduction rates. Increasing age profile of top researches with retirement of senior and experienced staff combined with decreasing candidates for replacement.[5]
- National and regional needs for graduates far outweigh current higher education institutional capacity.
- Low interest and too few graduates in science and technology.
- Poor levels of quality research and publications.
- Poor communications and transport infrastructure.
- Cross-border regulatory obstacles to regional collaboration.
- High dependence on international donors for the foreseeable future
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On the positive side there is now a clear recognition and a desire to promote research, higher education and knowledge across Africa. However, the reality on the ground for African universities is still difficult with a lack of concentration of talent, resources and acute governance crises. In addition as late as last November reports suggest that African universities still face a looming shortage of PhDs. In the case of innovation theory, the tertiary education system is particularly poor with economic analysis and planning still largely dominated by neoclassical economics.

3. The Importance of building an AFRICA RESEARCH AREA

Research is not a luxury[6] but is rather a productive power, pivotal to the development of national systems of innovation and overall economic development.[7] This is clearly recognised by the African Union and NEPAD which have recommended that 1 % of GDP by each African state should be spent on R&D. The Ministerial Forum on Health in its meeting in November 2008 formally recommended 2 % of GDP on health systems research as part of national research systems development in relation with other systems. Countries like Botswana plan to upgrade their R & D by the next five years.

South Africa has the strongest research base on the continent. The South African Department of Science and Technology has designed a ten year innovation plan (2008-2018) where the national leadership had understood the importance of research and knowledge. Since 1994 the country has managed to

[5] Adapted from SARUA's (Southern Africa Regional Universities Association): Strategic Plan 2007 – 2012 itself identifies some of the critical weaknesses that characterise the HE education system in the region

[6] Berit Olson, Former Director of SAREC

[7] Mammo Muchie, Presentation on Research Universities for Eradication of Poverty, UNESCO's Global Research Seminar, November 27-29, 2008

double the science budget. The South African government plans to create 210 research chairs by 2010 and 500 by 2018. It has plans to create 600 PhDs, with 300 in science, technology and engineering by 2018. It hopes to increase its global share of publications output by 1.5 % from its 0.5 % in 2006. Patent applications are expected to grow from 418 in 2004 to 2100 by 2018. South Africa's own patent office expects to grow from 4721 in 2002 to 24000 in 2018. Currently, South Africa has five research universities recognised by international rating and 8 Nobel laureates.[8] The challenge is how to create research and researcher mobility to link these research initiatives with other African countries in order to build research capacity across the continent.

In Africa both research and the African research university are key components of the African national systems of innovation and will play a major role in the eventual development of a continental system. The appreciation of research as productive power, a necessity and not a luxury is critical for progress. Research and researchers constitute part and parcel of the efforts to generate a functioning science, technology and innovation system within African borders. In this pursuit the role of the broader African Diaspora can and should be significant. The South African Research Chairs Initiative has been designed with the specific goal of drawing of the expertise of this Diaspora. Another example of this recognition made concrete is provided by the two networks of the Triple Helix Association and NESGLOBAL (see www.nesglobal.org) to stimulate knowledge remittance back to Ethiopia.

4. Issues for Reflection

The Africa research area can be built by integrating quality training with research capability , competence , capacity and these leading to research and training and human capital or resource productivity and together all leading to research and trained skill utilisation in university, economy, business, society and community.

The main research approach will be to explore and identify the options for African countries that are open and the constraints that hinder their policies and strategies for embedding and building an Africa research area.

This will focus on how the existing approaches in designing and sustaining higher education systems, research systems, university-industry,-community and Government helices and their interactions and knowledge, learning and innovation are organised.

The objective is to probe and find out weaknesses which will be then be examined to find practicable ways of organising research systems to create a strong Africa research area.

[8] DST, South African Ten Year Innovation Plan, Pretoria, South Africa, 2008

5. References

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Mammo Muchie: research professor on innovation studies hosted by IERI-TUT, managed by NRF and sponsored by DST, South Africa, and also part-time professor and coordinator of DIIPER, Aalborg University.: www.nesglobal.org, www.ieri.org.za, wwwidiiper.ihis.aau.dk